If there shall in the future result the concentration here at the national capital of the extensive entomological material which naturally comes here, and which in the past has been scattered among specialists in all parts of the country, so that in the future the student may find valuable material to further his work in any order, I shall feel amply rewarded for the action I have taken."

The Curators of all the Departments complain that in the new Museum building there is not nearly room enough for the display of the treasures placed under their care, and Prof. Baird presses upon the attention of the Board of Regents' the urgent necessity for "additional quarters." One of the arguments used by him may, perhaps, not be without effect on public opinion. Efforts are being made to secure that in 1892—the four hundredth anniversary of the discovery of America by Columbus—there shall be an exposition, presenting a complete illustration of the New World at that date, and of its progress in the arts and industries in the 400 years intervening. Prof. Baird points out that the collections of the National Museum for the most part tend towards such a display, and expresses his belief that if the new building for which he asks were erected it would be a very easy matter to organise and arrange it with this object in view, without unnecessary labour or great expense, and by the date mentioned, as the result of the current work of the Museum, without any spasmodic or unusual effort.

Of the Bureau of Ethnology we need only say that, during the fiscal year 1885-86, it continued its ethnologic researches among the North American Indians. Enthusiastic investigators carried on mound-explorations, explorations in ancient and modern stone villages, and general field studies. Much good office work was also done. This was, as usual, to a large extent the supplement to, and discussion of, the results obtained by exploration, and was executed by the same officers who had previously sought for materials and information in the field.

We have not space for further details, but probably we have said enough (as far as possible in the words of the Report itself) to indicate the very flourishing condition of the Smithsonian Institution and the establishments associated with it. The Institution is one of which Americans have good reason to be proud, and we cannot doubt that the claim for a new building, advanced by Prof. Baird on behalf of the National Museum, will be promptly and very carefully considered by Congress.

## *NOTES*

PROF. BÉCLARD, Dean of the Medical School of Paris, died a few days ago of pneumonia. He was buried with great ceremony on the 12th inst. A large number of professors and students attended the funeral. His best work is on the thermic phenomena accompanying muscular contraction. He was a pleasant man, of fluent and happy eloquence, and a good writer. His place will probably be filled by Ch. Richet, the editor of the *Revue Scientifique*.

THE Academy of Vienna intends to have a special meeting for the celebration of the centenary of the death of Father Boscovich, the astronomer. A similar ceremony will take place at Ragusa, his native place.

WE have received a proof copy of the annual address to the Asiatic Society, Calcutta, delivered by Mr. E. T. Atkinson, the President, on the 2nd inst. It is an able and very interesting survey of the work done by the Society in the past year, and of the progress made outside the Society in the subjects to which the attention of its members is directed.

THE sixth annual meeting of the Sanitary Assurance Association was held at the offices, 5 Argyll Place, W., on Monday last. Mr. Joseph Hadley, Secretary, read the annual Report, from which it appeared that the business of the Association during 1886 was much greater than in any previous year. The Report said that, of all the properties inspected, in only two cases of first inspection had the arrangements been such that the Council could certify the sanitary condition of the property without alteration. The Executive Council reported having held several meetings for the purpose of revising the Sanitary Registration of Buildings Bill of 1886, and a new Bill had been prepared for presentation to the House of Commons. In the new Bill, the principle of compulsory registration would be restricted to schools, colleges, hospitals, asylums, hotels, and lodging-houses. On the motion of Mr. Mark H. Judge, seconded by Mr. H. Rutherfurd, the following resolution was unanimously passed :—"That, as soon as the Sanitary Registration of Buildings Bill, 1887, is in the hands of members of the House of Commons, the President of the Local Government Board be asked to receive a deputation in support of the Bill."

ON Tuesday last the forty-first session of the General Medical Council was opened, and an address was delivered, as usual on such occasions, by the President, Dr. Acland, F.R.S. Starting with a reference to the Jubilee, he traced some of the changes which have taken place during the last fifty years in medicine and in the methods of medical education.

LORD RAYLEIGH will begin a course of six lectures on "Sound" on Saturday, February 26, at the Royal Institution.

IN the latest of his annual reports, President Eliot, of Harvard University, refers to the present position of science in the secondary schools of America. "A serious difficulty," he says, "in the way of getting science well taught in secondary schools has been the lack of teachers who knew anything of inductive reasoning and experimental methods. This he attributes in part to the fact that "good school methods of teaching the sciences have not yet been elaborated and demonstrated," and he urges that "it is the first duty of University departments of science to remove at least this obstacle to the introduction of science into schools."

WE have received the third part of the first volume of "The Proceedings of the Linnean Society of New South Wales," second series. It contains the papers read at the meetings held in July, August, and September 1886, and there are four plates. Among the contents are the fifth part of a "Catalogue of the described Coleoptera of Australia," by Mr. George Masters, an elaborate paper on the "Revision of Australian Lepidoptera," by Mr. E. Meyrick, and "Miscellanea Entomologica : No II. The Genus Liparetrus," by Mr. William Macleay.

IN the United States there is a very much larger number of female than of male teachers. According to the *Woman's Journal*, men are hardly ever employed in elementary schools in cities, save as principals or as teachers of some special branch. In the ten cities of Baltimore, Boston, Brooklyn, Chicago, Cincinnati, New Orleans, New York, Philadelphia, San Francisco, and St. Louis together, there are 12,719 public-school teachers, of whom 11,540 are women. The average percentage of male teachers in these cities is 9.

DR. M. TREUB, Director of the Botanical Gardens in Buitenzorg (Java), will be on furlough in Holland from the beginning of March till the end of November. In Dr. Treub's absence Dr. W. Burck will serve as Acting Director of the Gardens. Only the correspondence about the *Annales du Jardin Botanique de Buitenzorg*, together with private correspondence, is to be addressed to Dr. Treub himself (Voorschoten, near Leyden, Holland).

A FRENCH translation has just been issued of Preyer's "Physiology of the Embryo." This book is a valuable one, dealing with a very obscure subject, and also one of great interest to the physician as well as to the psychologist and physiologist. All the functions of the adult being are in turn considered in the embryo, the differences and similitudes being well pointed out. M. Preyer understands the value of a good method.

MM. CHARCOT AND RICHER have issued an interesting book on "Les Démoniaques dans l'Art," that is, on hysteria studied in art manifestations of the past. The book contains quite a number of pictures after the old masters, which show that all the convulsions and attributes due to hysteria had been noticed and accurately pictured, although the manifestations were ascribed to diabolical influence The scenes figured in this book relate especially to exorcising and similar feats, and very well illustrate the power of observation of many of the old painters.

A NEW medical paper is to be published shortly in Paris, under Prof. Grancher's direction, at a very low price, containing much matter and appearing twice a week. It will be called the *Univers Médical*, and the editor intends to devote a much larger part to foreign news than is usually given in French papers.

M. DUCLAUX, Professor in the Faculty of Sciences, issued on February 12 the first number of a new scientific periodical, the *Annales de l'Institut Pasteur*, of which he is editor, with a Committee comprising Messrs. Chamberland, Grancher, Nocard, Roux, and Straus. This periodical is to be published monthly, and will contain papers on bacteriology, physiologically and clinically considered. The first number contains a letter from Pasteur, giving very encouraging and positive facts concerning the efficacy of preventive inoculations, obtained in his own laboratory and in those of Russia and Italy.

HERR W. ENGELMANN, of Leipzig, has issued the first number of a monthly scientific periodical called *Zeitschrift für physikalische Chemie*. The editors are Profs. W. Ostwald, of Riga, and J. H. van't Hoff, of Amsterdam.

ACCORDING to the *American Meteorological Journal*, an attempt is about to be made at St. Augustine, Flo., to sink a 12-inch artesian well to a depth sufficient to obtain water hot enough to heat buildings, pure enough for domestic purposes, and with pressure enough to run heavy machinery. Water can be found in Florida by boring 250 feet; and it is known that the artesian wells in that State have considerable pressure, and from a depth of 600 feet send water of warm temperature to a height of 45 feet when piped. The earth's internal heat is already forced into practical service at Pesth, where the deepest artesian well in the world is being sunk to supply hot water for public baths and other purposes. This well supplies daily 176,000 gallons of water heated to 158° F., and the boring is to be continued until the temperature of the water is raised to 176°. Heavy machinery is run by artesian well power in many parts of France, and the experience of the French shows that the deeper the well the greater the pressure and the higher the temperature. At Grenelle, a well sunk to the depth of 1802 feet, and flowing daily 500,000 gallons, has a pressure of 60 lbs. to the square inch, and the water from this well is so hot that it is used for heating the hospitals in the vicinity.

THERE is now ample evidence that the use of oil may be of considerable service in lessening the effect of dangerous seas. In one case the "slick" made by the oil extended 30 feet to windward, and the U.S. Hydrographic Office concludes that the oil is of use when the vessel is reaching ahead at the speed of eight or nine knots, with a beam wind and sea.

HERR SCHILLER, a well-known German architect, reports some facts which are of interest as indicating the radius of the circle of protection of good lightning-rods. On June 17 last, at the village of Mottingen, lightning struck a pear-tree 33 feet high. On one side, 115 feet away, was a school-house, with a rod 56 feet high. On the other side was a church, 328 feet away, and having a lightning-rod reaching up 154 feet. Both rods are well placed, and had worked well when tested, and the level of the foot of the tree is about the same as that of the two buildings. It is evident, then, if the facts have been accurately reported, that the radius of the circle of protection is not more than twice the height of the rod.

ANOTHER earthquake is reported from Aquila. On the night of February 3, three shocks were felt, two of which were accompanied by strong undulatory motion.

EARTHQUAKES are also reported from the Vilayet Konia, in Asia Minor. On January 8, a subsidence of the ground was noticed at Holan Gola (Feneke district), accompanied with loud subterranean noises; many landslips took place in the adjacent hills. The shocks continued for six days, and the inhabitants of Feneke and the neighbouring villages took refuge in the fields. The earthquakes have destroyed seven villages.

ON January 15 the Hawaiian volcano Mauna Loa began to discharge. Frequent shocks of earthquake were felt. A letter written on January 19 says:—"There have been thirty-six hours' continuous earthquakes. The lava flows down the south slope, and if its course be unchanged it will flow into the sea without doing much damage."

THE Russian traveller M. Ogorodnikoff was told at Meshed that there are tin mines near that city and in various parts of Khorassan. In an article in the *Revue Scientifique* M. Berthelot points out that this accords with a passage in Strabo, who speaks (book xv. ch. ii. 10) of tin mines in Drangiana, the ancient name for the region now called Southern Khorassan. If there really have been tin mines in this district from time immemorial, there can be little doubt that they supplied the tin for the bronzes of ancient Egypt and Assyria.

THE first zoological station in the tropics has been founded by Dr. Sluiter, at Batavia. This gentleman is already well known by his works on the fauna of the Sunda Islands. The Natural History Society of the Dutch Indies has presented Dr. Sluiter with sufficient means to establish three work-tables with the necessary apparatus, and to purchase a sailing-boat.

MR. ABBOTT KINNEY writes to the Los Angeles *Weekly Tribune* that the floods in Southern California are becoming every year more violent and destructive. The testimony on this point, he says, is uniform, complete, and unimpeachable. The streams now nearly all bring down more sand, gravel, and boulders, rise more rapidly, cut away more land, and dry up more quickly than formerly. Valuable valley lands are thus cut away or covered up, and in some cases the streams have spread out and deposited great fan-shaped mounds of sand and boulders. Mr. Kinney attributes the change chiefly to the destruction of forests. The brush and forests on the hills and mountains have been to a large extent swept away, and the result is that there is nothing to hold the water back. The rains do not penetrate into the soil and rocks which supply the springs, but rush suddenly off the mountains as from a roof, carrying the soil first, and then the gravel and boulders with them. The springs, deprived of their supply, diminish. The principal agent in the destruction of the natural verdure and protection of the mountains has been fire. Fires accidentally lighted, fires made by stock-men, bee-men, and fools, are, according to Mr. Kinney, producing effects that must eventually make Southern California a desert.

It is proposed that a school of hygiene shall be established at the University of Michigan, and the State Legislature is about to be asked to authorise the necessary expenditure. The scheme was suggested by the State Board of Health. The school would include in its curriculum climatological studies, air analyses and ventilation.

Last week there was a Convention of Photographers in the Hall of the Society of Arts, and the attendance was good and representative. The proceedings in the morning were opened by a few remarks from Capt. Abney, the President, who, in the afternoon, delivered a more elaborate address, projecting on a screen a succession of diagrams and pictures illustrative of his statements. At a dinner in the evening the toast of the Camera Club was proposed by Mr. V. Blanchard, who, in recalling the time when he made his first practical acquaintance with photography by watching a friend develop a paper negative, expressed the opinion that photographers might perhaps return to the use of paper negatives.

Prof. Liversidge, of the University of Sydney, who is about to return to England on leave of absence, has been requested by the Minister of Public Instruction of New South Wales to inquire into and report upon the mode of teaching natural science in the elementary schools of Great Britain and Ireland.

New South Wales will be represented at the Conference of Astronomers to be held in Paris in April next, by Mr. H. C. Russell, the Government Astronomer.

A valuable "Report on the Medusæ collected by the U.S. Fish Commission Steamer *Albatross*, in the Region of the Gulf Stream in 1883–84," by Mr. J. Walter Fewkes, has lately been reprinted, at the Government Printing Office, Washington, from the Annual Report of the Commissioner of Fish and Fisheries for 1884. Mr. Fewkes is not sure that certain of the Medusæ recorded by the *Challenger* from great depths do not also live and flourish at or near the surface. There is need, he thinks, for greater accuracy in the determination of the exact depth from which a deep-sea Medusa is taken, and for an improvement of the apparatus used in this kind of collecting. In the case of fixed hydroids, or such Medusæ as *Cassiopeia* and others, which live upon the bottom, the determination of the depth at which they live is an easy task. With such genera as *Atolla*, *Rhizophysa*, and others, this determination is more difficult. Mr. Fewkes points out that it is of great importance, from a morphological stand-point, that the question whether Medusæ are confined to certain depths, should be definitely answered. "I can at present," he says, "imagine no place on the globe where the uniformity of conditions under which Medusæ are placed can be the same as at great depths of the ocean. I do not mean necessarily on the floor of the ocean, since that may be raised or depressed, and the varieties of conditions which come from such motions may result, but in the depth of the sea, separated from the surface by a wall of water of great depth, and from the ocean-bed by a similar wall of equal amount. Here, if anywhere, may we look for the continuance of ancestral features unmodified by environment. On this account the determination of the bathymetrical limits of free Medusæ, no less than that of those animals which inhabit the bottom, is a most important thing, and from it should be eliminated all possibility of error."

Dr. Otto Hermes has just published the results of some interesting investigations concerning the phosphorescence of marine fish. He wished to ascertain whether the phosphorescence was caused by the same Bacillus which Dr. Fischer, an eminent authority on Bacteria, has discovered and brought from the West Indies. Marine fish are easily rendered phosphorescent after death by being moistened with a little sea-water. Dr. Hermes took a fragment of a specimen of *Gadus callarias*, which had been made strongly phosphorescent in this manner, to the laboratory of Councillor Koch; and Dr. Frank, a pupil of the latter, was enabled to isolate it after a few days. This is undoubtedly a new species. Like Dr. Fischer's Bacillus, it can be transferred upon sterilised fish, and after forty-eight hours it emits an emerald-green light; the sea-water is also rendered phosphorescent. A point of difference is that the Bacillus of Dr. Fischer develops best in a high temperature (20°–22°), while that of Dr. Hermes develops better in a low one. Examined microscopically, the latter is much smaller than the former. Dr. Hermes has given it the name of *Bacterium phosphorescens*.

The German Fishery Association lately asked the German Chamber of Commerce to put a premium on seals, it being maintained that these animals are most destructive to the fisheries. The petition was refused. The Association, in support of its views, stated that a full-grown seal requires 10 lbs. of fish a day for its food, making 3650 lbs. in a year. At the same rate, 1000 seals would consume the enormous quantity of 3,650,000 lbs. a year. As the seal is a faithful attendant upon herring-shoals, it causes enormous havoc among a species of fish which is one of the greatest sources of revenue to the fishermen on the North German coast. It is maintained that these depredations have greatly decreased the quantity of fish in recent years. Complaints of the serious destruction of fish by seals have also lately been made by Swedish fishermen in the Baltic.

The additions to the Zoological Society's Gardens during the past week include a Green Monkey (*Cercopithecus callitrichus* ♂) from West Africa, presented by Mr. Charles W. Demprey; a Bonnet Monkey (*Macacus sinicus* ♂) from India, presented by Mr. G. S. Copeland; a Common Otter (*Lutra vulgaris*), British, presented by Mr. John Hall; two Rufous Tinamous (*Rhynchotus rufescens*) from Brazil, presented by Mr. Francis Monckton; two White-throated Finches (*Spermophila albogularis* ♂ ♀) from Brazil, deposited; a Collared Fruit Bat (*Cynonycteris collaris*), born in the Gardens.

## *OUR ASTRONOMICAL COLUMN*

A Method for the Determination of the Constant of Aberration.—Referring to M. Lœwy's plan for the determination of the constant of aberration by measuring the relative positions of stars situated in distant parts of the sky at successive epochs by means of a double mirror placed in front of the object-glass of an equatorial (Nature, vol. xxxv. p. 282), M. Houzeau points out (*Comptes rendus*, tome civ. No. 5) that the same idea occurred to him some years ago, and that the fundamental principle of the method, and an enumeration of the advantages attending its application, were published by him in 1871, in a paper entitled "Considérations sur l'Etude des petits Mouvements des Etoiles," which appeared in tome xxxviii. of the Mémoires de l'Académie de Belgique. It appears, therefore, that M. Lœwy's method cannot, strictly speaking, be considered a new one, though we believe it has never been put into actual practice—a work which we hope to see before long accomplished at the Paris Observatory.

The Application of Photography to the Determination of Stellar Parallax.—In the *Monthly Notices* for January 1887, Prof. Pritchard publishes the results of his measurements of the photographs of 61 Cygni and neighbouring stars, taken on fifty nights ending December 7, 1886, with a view to the determination of the parallax of this well-known star. Using measures of distance only, the relative parallaxes of each of the components, referred to each of four comparison-stars, are:—

| Star | Parallax of $61^1$ Cygni | Probable error | Parallax of $61^2$ Cygni | Probable error |
|---|---|---|---|---|
| | ″ | ″ | ″ | ″ |
| *a* | 0·4412 | 0·0154 | 0·4204 | 0·0229 |
| *b* | ·4529 | ·0330 | ·4139 | ·0185 |
| *c* | ·4433 | ·0197 | ·4721 | ·0215 |
| *d* | ·4158 | ·0161 | ·4574 | ·0252 |